

FINAL TECHNICAL REPORT

NASA GRANT NSG 5395

IUE Observations of Cataclysmic Variable

1979 - 1993

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This grant provided funding for 22 approved IUE programs over a 14 year period. These programs are listed on the next page. The observations and subsequent analysis centered on cataclysmic variables (close binaries with a late main sequence star transferring material to a primary white dwarf via an accretion disk). The early studies highlighted the flux distribution of the accretion disk at outburst and quiescence, while later studies accomplished time-resolved observations throughout the orbital cycles, the study of the outflowing winds present at outburst, the study of the white dwarf in those systems with low accretion rate, and the differences apparent in magnetic and other peculiar cataclysmic variables.

There are 39 publications resulting from this work (listing attached). These results include those for individual systems (Stepanian's star, Lanning 10, AM Her, MV Lyr, TV Col, VW Hyi, T Leo, IR Gem, TT Ari, Z Cam, BV Pup, IP Peg, PG1030+590, V1315 Aql, SW UMa, V426 Oph, WZ Sge, BY Cam and U Gem) as well as review articles in journals and publications from reviews at meetings that summarize the impact of IUE on the study of accretion disks, white dwarfs and hot spots resulting from stream impact as well as magnetic accretion columns.

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APPROVED IUE PROGRAMS

Title/Investigator (P.I. Szkody unless otherwise noted)	Year	Shift Allotment	
		US1	US2
1. UV Obs. of Selected Cataclysmic Variables	2	4	4
2. UV Study of Short Period CVs	3	2	4
3. Short Period CVs (VY Scl Stars)	4	3	1
4. Short Outburst P Catalysmic Variables	5	3	3
5. A Study of the Variability of 2A0526-328	5	0	4
6. A Study of 4 New AM Her Variables	6	2	0
7. Ext. Outburst/High Excitation CVs	6	2	2
8. A Study of the Orb. Var of Z Cam	6	0	2
9. Disk Development in U Gem (with A. Kiplinger)	7	0	4
10. Accretion Characteristic of 6 CVs	8	2	2
11. V426 Oph and IP Peg	9	2	2
12. Low States of Novalike Systems	9	4	0
13. Disks in CVs at Quiescence	9	AR	AR
14. Low States of Novalike Systems	10	3	0
15. UV Cooling in Long Outburst P Dwarf Novae	10	4	0
16. Correlation of UV Flux with Outburst Phase and Type (with J. Mattei, AAVSO)	10	AR	AR
17. Low States of Novalike Systems (with R. Downes)	11	4	0
18. Long Term Heating/Cooling of WDs/Disks (with E. Sion)	11	3	0
19. The Hot Component in 3 New CVs (with P. Garnavich)	12	0	1
20. The Peculiar CVs FSV1132-11 and S193 (with P. Garnavich)	13	2	2
21. An IUE Study of 2 Interesting New Novalikes	14	1	0
22. Large Amp CVs in Outburst (P.I. G. Sonneborn)	14	1	2

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4. "Lanning 10 and 33: The X-ray, UV and Optical Fluxes", P. Szkody and L. Crosa, 1981, *Ap. J.*, **251**, 620.
5. "The Low State of AM Her: Observations from 0.12 - 10 μ ", P. Szkody, J. C. Raymond and R. W. Capps, 1982, *Ap. J.*, **257**, 686.
6. "IUE and Optical Observations of MV Lyr at Intermediate and Low States", P. Szkody and R. A. Downes, 1982, *P.A.S.P.*, **94**, 329.
7. "Cataclysmic Variables: Disk Characteristics from UV Observations", P. Szkody, 1982, *Adv. in UV Astronomy: 4 Years of IUE Research*, NASA, 474.
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18. "UV, Optical and IR Observations of the Intermediate Polar TV Col", M. Mateo, P. Szkody and J. Hutchings, 1985, *Ap. J.*, **288**, 292.
19. "TT Ari: The Low State", A. W. Shafter, P. Szkody, J. Liebert, W. Penning, H. E. Bond and A. Grauer, 1985, *Ap. J.*, **290**, 707.
20. "IUE Results on the AM Her Stars CW 1130, E1114 and PG 1550", P. Szkody, J. Liebert and R. J. Panek, 1985, *Ap. J.*, **293**, 321.
21. "Multifrequency Observations of Dwarf Novae Outbursts", P. Szkody, 1985, in *Recent Results on Cataclysmic Variables*, ESA, 39.
22. "Multiwavelength Observations of 11 Cataclysmic Variables", P. Szkody, 1985, *A. J.*, **90**, 1837.

23. "UV Study of U Gem Throughout an Entire Quiescent Interval", P. Szkody and A. Kiplinger, 1985, *BAAS*, **17**, 839.
24. "Z Cam: Outburst P Cygni Profiles and Quiescent Continuum", P. Szkody and M. Mateo, 1986, *Ap. J.*, **301**, 286.
25. "X-Ray, UV and Optical Observations of the Dwarf Nova BV Pup", P. Szkody, S. Howell and R. Kennicutt, 1986, *P.A.S.P.*, **98**, 1151.
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27. "Time Resolved IUE Studies of Cataclysmic Variables I. Eclipsing Systems IP Peg, PG1030+590 and V1315 Aql," P. Szkody, 1987, *A. J.*, **94**, 1055.
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